stoneconsulting,inc

November 23, 2015

Arlington Retirement Board
869 Massachusetts Avenue, Room 109
Arlington, MA 02476

Dear Arlington Retirement Board:

Stone Consulting, Inc. has performed a January 1, 2015 actuarial valuation of the Arlington Retirement System. This valuation and report was prepared using generally accepted actuarial principles and practices. It does not include GASB Nos. 67 and 68 results as those will be presented in a separate report. To the best of our knowledge, this report is complete and accurate, and the assumptions used represent our best estimate of anticipated experience of the system.

As part of performing the valuation, Stone Consulting, Inc. was furnished member data by the Arlington Retirement System's administrative staff. Although examined for general reasonableness, the data was not audited by the actuary. In addition, the administrative staff furnished financial statements that were not audited by the actuary or by the plan's auditors.

The funding objective of the plan is to fully fund the system while attempting to maintain a stable contribution amount for the upcoming fiscal year that is consistent with prior funding schedules or if employer finances allow it, to increase the contribution amount. This funding objective is being met.

We anticipate over time the contribution level to increase as a percentage of payroll. The contribution rate is determined by adding the normal cost plus an amortization of the unfunded actuarial accrued liability. The normal cost is expected to remain at a level percentage of payroll. The length of the funding schedule contained in this actuarial valuation report is seventeen years (fully funded by 2033). The contribution is set to increase by 5.50% each year except for the final year, Fiscal Year 2033, when the contribution decreases by 46.06%.

The amortization payment each year is the amount left over after subtracting the normal cost and the 3(8)(c) payments from the contribution amount.

The contribution amount for Fiscal Year 2017 is $11,086,329 which is equal to the anticipated contribution amount from the prior funding schedule. PERAC and GASB guidelines indicate that actuarial valuations should be conducted biennially. GASB Statements 67 and 68 require annual updates for asset experience and changes in cost allocation. The Arlington Retirement Board conducted their previous actuarial valuation effective January 1, 2014.

The actuarial results for the GASB Statement 25 disclosure do not include the effect of the ongoing adoption by the Town of Sections 90A, C and D of Chapter 32 of the MGL for purposes of funding. It is not necessary to prospectively include the effect of this pattern of benefit improvements. However, GASB Statement 68, which was effective in Fiscal 2015, requires that these provisions be reflected as substantively automatic.

We are pleased to present the results of this valuation. If the Retirement Board has any questions on the content of this report, we would be glad to respond. Please note that this report is meant to be used in its entirety. Use of excerpts of this report may result in inaccurate or misleading understanding of the results.

I, Lawrence Stone, am a consultant for Stone Consulting, Inc. I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,
STONE CONSULTING, INC.
Actuaries for the Plan

Lawrence B. Stone
Member, American Academy of Actuaries

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Introduction

This report presents the results of the actuarial valuation of the Arlington Retirement System. The valuation was performed at the request of the Retirement Board as of January 1, 2015 for the purpose of determining the contribution requirements for Fiscal Year 2017 and beyond. The contribution requirements are based on:

- The financial condition of the system as of December 31, 2014
- The benefit provisions of M.G.L. Chapter 32 and related statutes;
- The demographics of members in the system (i.e., active and inactive participants, retirees and beneficiaries as of January 1, 2015);
- Economic assumptions regarding salary increases and investment earnings; and
- Other actuarial assumptions (e.g., withdrawals, retirement, death, etc.)

January 1, 2015 Valuation Summary

	January 1, 2015	January 1, 2014	Change
Contribution Fiscal 2017	$11,086,329	$11,086,329	Same
Funding Schedule Length (as of Fiscal 2017)	17 years	17years	Same
Annual Increase in Contribution	5.50%	5.50%	0.00%
Funding Ratio	51%	49%	2%
Interest Rate Assumption	7.50%	7.50%	0.00%
Salary Increase Rate Assumption	Select and 4.00% ultimate	Same	0.00%

- The Fiscal Year 2017 contribution is equal to the planned 2017 contribution. Stone Consulting, with agreement from the Retirement Board, values assets using a four-year asset smoothing method. In this approach, asset gains and losses are recognized over a four-year period. The purpose of this approach is to avoid wide swings in asset value from one year to the next.

- The System, over the one-year period from January 1 to December 31, 2014, experienced a 7.5% annual return on the market value of assets versus our assumption of 7.50%. There was a minimal $4,318 net actuarial loss in calendar year 2014. The System's asset portfolio, effective December 31, 2014 is approximately 77% equities and 23% fixed income and short-term investments. The interest rate assumption was maintained at 7.50% to reflect anticipated future market performance.

- The salary increase assumption was maintained from the prior valuation. We used a select and ultimate table (Group 1 and 2, 3.50% steps for first 7 years; Group 4, longevity increases of .75% in year 5, 1.75% in year 10, 2.75% in year 15, 3.75% in year 20, and 4.75% in year 25; ultimate rate of 4.00% for all groups). Total compensation changed by 5.4% over the prior valuation; however average annual compensation (compensation divided by number of active members) only changed by 3.6%.

- The funding level of the Arlington Retirement System is 51% compared to 49% for the January 1, 2014 actuarial valuation. Using the Market Value of Assets results in a funding ratio of 53%. The funding level is estimated to be below the median for Massachusetts' Contributory Retirement Systems. However, it is difficult to compare funding levels of different systems as they are based on differing actuarial assumptions. The Arlington Retirement System is valued using relatively conservative assumptions in both discount rate and mortality, compared to many other Retirement Systems. This has the effect of making the Arlington Retirement System appear less funded than an equivalent system using a less conservative assumption set.

The schedule length is seventeen (17) years, a length consistent with the 17 years remaining from the 18 year schedule from the prior valuation. The maximum period permitted under Section 22F of Chapter 32 of the Massachusetts General Laws is twenty-four years (Fiscal 2040). The payments are set so that the total contribution amount will increase by 5.50% each year, except for a 46.06% decrease in FY 2033. The 5.50% increase amount is consistent with the schedule from the prior valuation.

- The mortality assumption is based upon the RP-2000 mortality table projected with Generational Mortality, Scale BB. This assumption has been maintained from the prior valuation.

- Assumptions have been set by the Retirement Board using the recommendations by Stone Consulting, Inc. Experience different from the actuarial assumptions can result in contributions and funding levels different than shown in this report.

January 1, 2015 Actuarial Valuation Results

	January 1, 2015	January 1, 2014	Percentage Change
Funding			
Contribution for Fiscal 2017	$11,086,329		0.0%
Contribution for Fiscal 2017 based on current schedule		$11,086,329	
Members *			
Actives			
a. Number	705	693	1.7%
b. Annual Compensation	$33,533,875	$31,803,519	5.4%
c. Average Annual Compensation	$47,566	$45,893	3.6%
d. Average Attained Age	47.4	47.0	0.9%
e. Average Past Service	11.1	10.7	3.7%
Retired, Disabled and Beneficiaries			
a. Number	605	623	-2.9%
b. Total Benefits*	$16,215,988	$16,184,503	0.2%
c. Average Benefits*	$26,803	$25,978	3.2%
d. Average Age	74.9	74.5	0.6%
Inactives			
a. Number	308	307	0.3%
Normal Cost			
a. Total Normal Cost as of January 1, 2015	$4,956,085	$4,744,410	4.5%
b. Less Expected Members' Contributions	3,063,820	2,901,794	5.6%
c. Normal Cost to be funded by the Municipality	$1,892,265	$1,842,616	2.7%
d. Adjustment to July 1, 2016	129,154	125,765	2.7%
e. Administrative Expense Assumption	381,139	368,711	3.4%
f. Normal Cost Adjusted to July 1, 2016	$2,402,559	$2,337,092	2.8%
Actuarial Accrued Liability as of January 1, 2015			
a. Active Members	$98,619,428	$91,897,852	7.3%
b. Inactive Members	1,331,380	1,580,240	-15.7%
c. Retired Members and Beneficiaries	155,542,795	156,933,756	-0.9%
d. Total	$255,493,603	$250,411,848	2.0%
Unfunded Actuarial Accrued Liability			
a. Actuarial Accrued Liability as of January 1, 2015	$255,493,603	$250,411,848	2.0%
b. Less Actuarial Value of Assets as of January 1, 2015	130,161,668	123,494,772	5.4%
c. Unfunded Actuarial Accrued Liability as of January 1, 2015	$125,331,935	$126,917,076	-1.2%
d. Adjustment to July 1, 2016	$6,594,862	$7,275,309	
e. Unfunded Actuarial Accrued Liability as of July 1, 2016	$131,926,797	$134,192,385	

*Excluding State reimbursed COLA

Demographic Information

	January 1,2015	Percentage Change
Members		
▪ Actives		
a. Number	705	1.7%
b. Annual Compensation	$33,533,875	5.4%
c. Average Annual Compensation	$47,566	3.6%
d. Average Attained Age	47.4	0.9%
e. Average Past Service	11.1	3.7%
▪ Retired, Disabled and Beneficiaries		
a. Number	605	-2.9%
b. Total Annual Retirement Allowance excluding State-reimbursed COLA	$16,215,988	0.2%
▪ Inactives		
a. Number	308	0.3%

- The data was supplied by the Arlington Retirement Board. The data was checked under broad parameters for reasonableness. With the assistance of the staff of the Arlington Retirement Board, we were able to develop a database sufficient for valuation purposes.

History of Active Participants

Valuation Year	Number	Average Age	Average Past Service	Average Ann'l Compensation
2015	705	47.4	11.1	$47,566
2014	693	47.0	10.7	$45,893
2013	676	47.6	11.0	$44,394
2012	677	47.7	11.0	$42,261
2011	661	48.3	11.6	$43,323
2010	677	48.1	11.3	$42,694
2008	707	48.6	11.3	$39,257
2006	681	48.3	11.7	$38,676
2005	664	48.4	11.6	$38,115
2004	683	48.1	11.5	$35,116
2003	683	48.2	11.3	$34,490
2002	733	48.5	11.5	$33,119

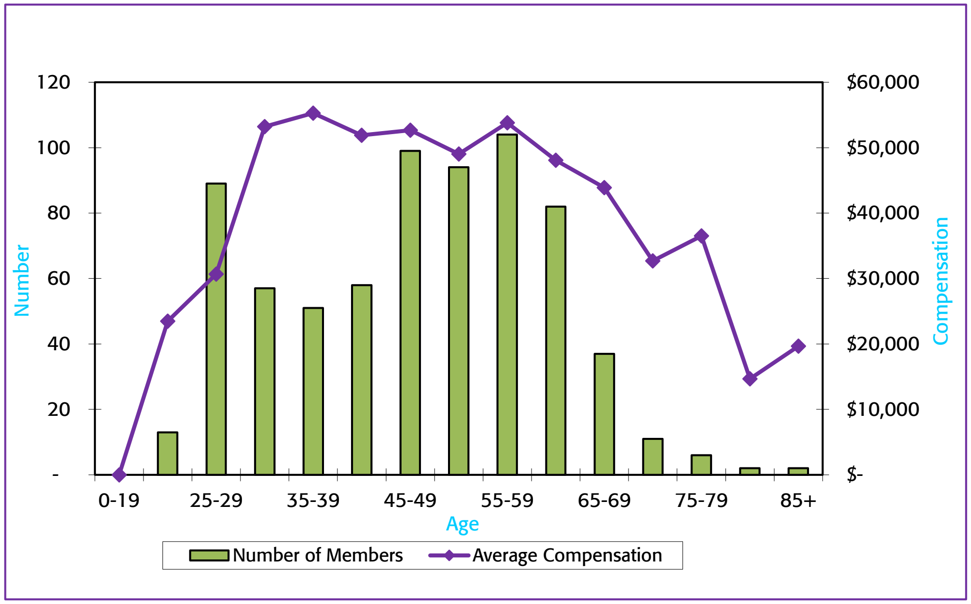
- Employee age has decreased by 1.1 years and service has decreased by .4 years over the course of the past thirteen years. This differs from the trend in the Commonwealth towards an aging of the employee population. Average annual compensation has grown by 43.6% (2.8% annually) over the same time period.

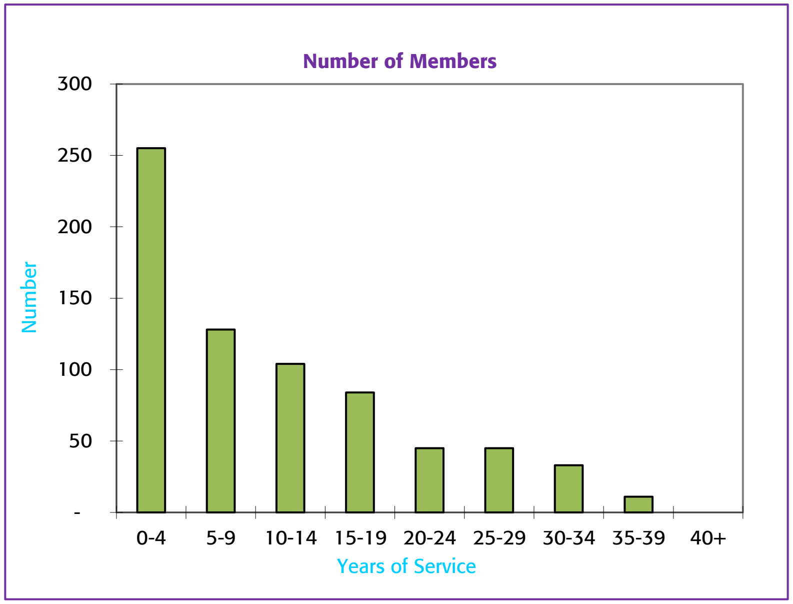
The charts on the following pages summarize demographic information regarding active and retiree members.

Distribution of Plan Members as of January 1, 2015

ACTIVE MEMBERS

AGE	0-4 Years	5-9 Years	10-14 Years	15-19 Years	20-24 Years	25-29 Years	30-34 Years	35-39 Years	40 + Years	Total	Total Compensation	Average Compensation
0-19	-	-	-	-	-	-	-	-	-	-	$ -	$ -
20-24	13	-	-	-	-	-	-	-	-	13	$ 305,395	$ 23,492
25-29	81	8	-	-	-	-	-	-	-	89	$ 2,730,632	$ 30,681
30-34	34	19	4	-	-	-	-	-	-	57	$ 3,033,316	$ 53,216
35-39	20	13	17	1	-	-	-	-	-	51	$ 2,819,296	$ 55,280
40-44	21	12	12	11	2	-	-	-	-	58	$ 3,010,931	$ 51,913
45-49	35	14	11	18	11	10	-	-	-	99	$ 5,214,791	$ 52,675
50-54	24	23	16	11	11	6	3	-	-	94	$ 4,610,196	$ 49,045
55-59	10	16	20	17	8	20	12	1	-	104	$ 5,593,947	$ 53,788
60-64	15	15	15	12	8	3	9	5	-	82	$ 3,943,696	$ 48,094
65-69	1	7	6	9	3	3	6	2	-	37	$ 1,624,218	$ 43,898
70-74	1	-	2	3	2	2	-	1	-	11	$ 359,656	$ 32,696
75-79	-	-	1	2	-	-	1	2	-	6	$ 219,100	$ 36,517
80-84	-	1	-	-	-	1	-	-	-	2	$ 29,367	$ 14,684
85+	-	-	-	-	-	-	2	-	-	2	$ 39,335	$ 19,668
TOTAL	**255**	**128**	**104**	**84**	**45**	**45**	**33**	**11**	**-**	**705**	**$ 33,533,875**	**$ 47,566**





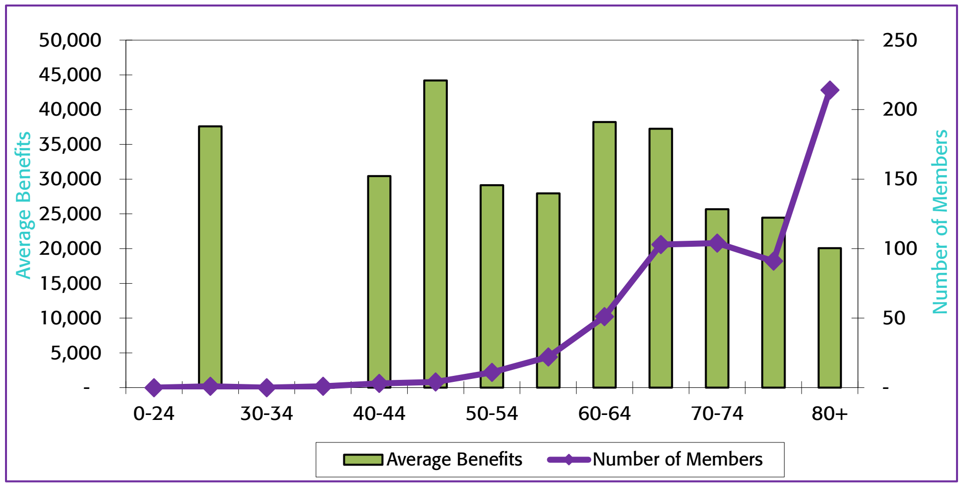
Distribution of Plan Members as of January 1, 2015

RETIRED MEMBERS

Retired Members and Beneficiaries			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	1	37,607	37,607
30-34	-	-	-
35-39	1	117	117
40-44	1	1,884	1,884
45-49	1	18,644	18,644
50-54	6	21,560	129,360
55-59	13	23,894	310,618
60-64	38	39,311	1,493,830
65-69	83	36,665	3,043,223
70-74	90	24,623	2,216,109
75-79	80	22,864	1,829,083
80+	202	19,326	3,903,950
TOTAL	516	$ 25,164	$ 12,984,424

Disabled Members			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	2	44,727	89,454
45-49	3	52,728	158,183
50-54	5	38,187	190,936
55-59	9	33,793	304,140
60-64	13	34,945	454,279
65-69	20	39,724	794,478
70-74	14	32,417	453,836
75-79	11	36,016	396,181
80+	12	32,506	390,076
TOTAL	89	$ 36,310	$ 3,231,563

Total			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	1	37,607	37,607
30-34	-	-	-
35-39	1	117	117
40-44	3	30,446	91,338
45-49	4	44,207	176,828
50-54	11	29,118	320,296
55-59	22	27,944	614,758
60-64	51	38,198	1,948,109
65-69	103	37,259	3,837,701
70-74	104	25,673	2,669,945
75-79	91	24,453	2,225,264
80+	214	20,066	4,294,025
TOTAL	605	$ 26,803	$ 16,215,988



Benefits shown are net of State reimbursed COLA.

Valuation Methodology

Stone Consulting, Inc. used the Entry Age Normal actuarial funding method in this actuarial valuation. The use of the Entry Age Normal actuarial funding method is consistent with the requirements of Chapter 32 of the Massachusetts General Laws.

NORMAL COST

	January 1, 2015	% of Payroll*
Gross Normal Cost (GNC)	$4,956,085	14.8%
Employees Contribution	$3,063,820	9.1%
Net Normal Cost (NNC)	$1,892,265	5.6%
Adjusted to Beginning of Fiscal Year 2017	$129,154	
Administrative Expense	$381,139	1.1%
Adjusted Net Normal Cost With Admin. Expense	$2,402,559	

*Payroll paid in 2014 for employees as of January 1, 2015 is $33,533,875. Payroll for new hires in 2014 was annualized.

- The gross normal cost (GNC) is the "price" of benefits accruing in the current year if the assumptions underlying the normal cost were realized.

- An individual normal cost represents that part of the cost of a member's future benefits that are assigned to the current year as if the costs are to remain level as a percentage of the member's pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and withdrawals) are included in this calculation.

- Anticipated employee contributions to be made during the year are subtracted from the GNC to determine employer normal cost, or net normal cost (NNC).

- Administrative expenses added to the NNC. The administrative expense does not include investment manager and custodial fees. These fees are considered part of the interest rate assumption that is net of fees.

Actuarial Accrued Liability and Funded Status

				January 1, 2015	Percentage Change
Active Actuarial Accrued Liability			$	98,619,428	7.3%
Superannuation	$	91,104,042			
Death	$	1,964,331			
Disability	$	4,819,950			
Withdrawal	$	731,105			
Retiree, Inactive, Survivor and Beneficiary Actuarial Accrued Liability			$	156,874,175	-1.0%
Retirees and Beneficiaries	$	119,755,658			
Disabled	$	35,787,137			
Inactive	$	1,331,380			
Total Actuarial Accrued Liability (AAL)			$	255,493,603	2.0%
Actuarial Value of Assets (AVA)			$	130,161,668	5.4%
Unfunded Actuarial Accrued Liability			$	125,331,935	-1.2%
Funded Ratio (AVA / AAL)					
2015 (7.50% interest rate):		51%			
2014 (7.50% interest rate):		49%			

Actuarial Accrued Liability (AAL) is the “price” of benefits attributable to benefits earned in past years, or in other words, represents today’s value of all benefits earned by active and inactive members. The total AAL is $255,493,603. This along with an actuarial value of assets of $130,161,668 produces a funded status of 51%. This compares to a funded status of 49% for the 2014 valuation. Using Market Value of Assets produces an Unfunded Actuarial Accrued Liability of $120,174,922.

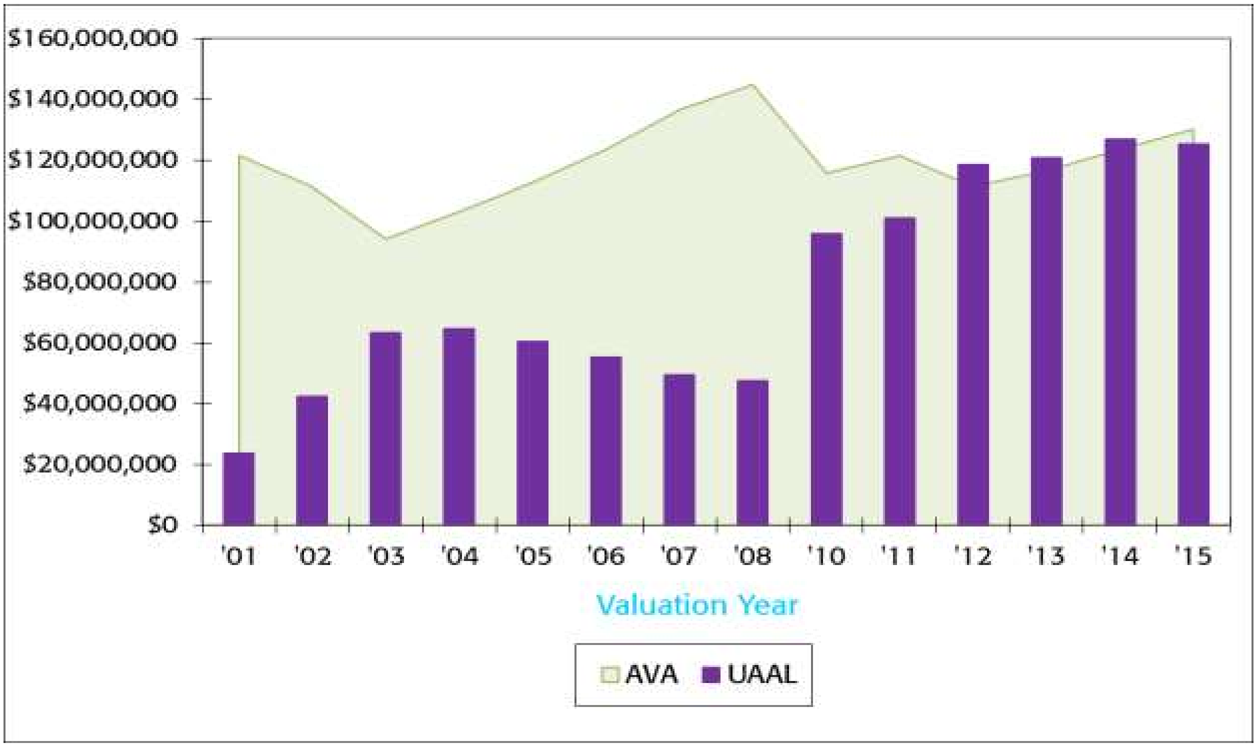
The funded status is not appropriate for assessing the sufficiency of plan assets for settlement as it includes projection of salaries as well as smoothing methods inherent in the Entry Age Normal actuarial funding method.

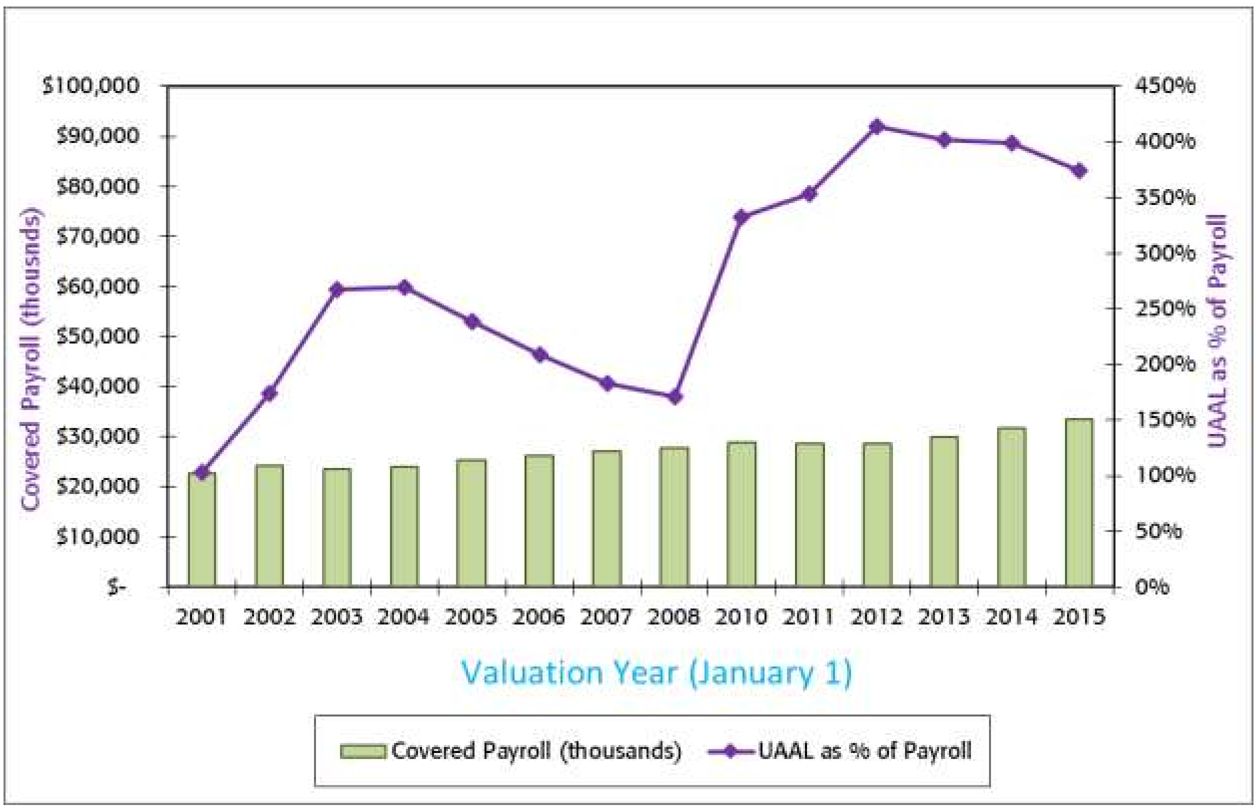
The charts on the following page are:

- History of the unfunded actuarial accrued liability (UAAL) and the valuation assets (AVA) over the course of the past fourteen actuarial valuations

- History of the UAAL as a percentage of covered payroll and covered payroll amount over the same period

Charts of Selected Actuarial and Demographic Statistics





Development of Funding Schedule

Net Employer Normal Cost for Fiscal 2017 (including admin. expenses)	2,402,559
Net 3(8)(c) Payments	(33,988)
Amortization	8,717,758
Total Appropriation required for Fiscal 2017	11,086,329

- The funding schedule is composed of the normal cost, the net 3(8)(c) payments and the amortization of the actuarial accrued unfunded liability and is adjusted by the administrative expense assumption. The contribution is assumed to be made at the beginning of the fiscal year. The 3(8)(c) payments are the amount that the Arlington Retirement System pays to or receives from other retirement boards for service that a retiree had with a different retirement system. The net 3(8)(c) payments is the difference between what the Arlington Retirement System paid out minus what was received by the System.

- The contribution amount for Fiscal 2017 is $11,086,329. The funding schedule is presented on page 11. The schedule's length is seventeen (17) years (for the fresh start base) which is the remainder of the 18 year schedule from the January 1, 2014 valuation. The maximum funding schedule length allowed by Section 22F of Chapter 32 of the Massachusetts General Laws is twenty-four years to Fiscal 2040.

- In developing the funding schedule, we used a fresh start approach in which the unfunded actuarial accrued liability (UAAL), other than the UAAL due to past early retirement incentives, is reamortized instead of maintaining the existing amortization amount and separately amortizing the actuarial gain or loss. The use of a fresh-start approach can result in a funding schedule in which the changes in contribution amounts from year to year are more consistent. The amortization is adjusted each year to maintain a constant increase in the total contribution. In this funding schedule, the contribution increases 5.50% a year.

- We expect that if the actuarial assumptions are realized, the system should become fully funded and future contributions should be reasonably related to the contributions shown in the funding schedule. The funding schedule assumes a static population where the future population has the same demographic makeup as the existing population. Shifts in the employee population and in the level of employee contribution percentages as well as the effect of pension reform have not been reflected. We expect these to result in lower contributions than shown in the funding schedule.

FUNDING SCHEDULE

Fiscal Year	Normal Cost	Unfunded Liability*	Funding Amortization of UAAL	Net 3(8)(c) Payments+	Schedule Contribution**	% Change
2017	2,402,559	131,926,797	8,717,758	(33,988)	11,086,329	5.50%
2018	2,510,674	129,220,519	9,322,113	(136,710)	11,696,077	5.50%
2019	2,623,654	126,961,892	9,852,417	(136,710)	12,339,361	5.50%
2020	2,741,719	125,893,765	10,413,017	(136,710)	13,018,026	5.50%
2021	2,865,096	124,141,804	11,005,631	(136,710)	13,734,018	5.50%
2022	2,994,026	121,621,386	11,632,073	(136,710)	14,489,389	5.50%
2023	3,128,757	118,238,512	12,294,258	(136,710)	15,286,305	5.50%
2024	3,269,551	113,890,072	12,994,211	(136,710)	16,127,052	5.50%
2025	3,416,681	108,463,051	13,734,069	(136,710)	17,014,039	5.50%
2026	3,570,431	101,833,656	14,516,090	(136,710)	17,949,812	5.50%
2027	3,731,101	93,866,383	15,342,661	(136,710)	18,937,051	5.50%
2028	3,899,000	84,413,001	16,216,299	(136,710)	19,978,589	5.50%
2029	4,074,455	73,311,455	17,139,666	(136,710)	21,077,412	5.50%
2030	4,257,806	60,384,673	18,115,574	(136,710)	22,236,669	5.50%
2031	4,449,407	45,439,282	19,146,989	(136,710)	23,459,686	5.50%
2032	4,649,630	28,264,215	20,237,048	(136,710)	24,749,969	5.50%
2033	4,858,864	8,629,204	8,629,204	(136,710)	13,351,357	-46.06%
2034	5,077,512	-	-	(136,710)	4,940,802	-62.99%

Amortization of Unfunded Liability as of July 1, 2016

Year	Type	Original Amort. Amount	Percentage Increasing	Original # of Years	Current Amort. Amount	Years Remaining
2004	ERI - Town	38,902	4.00%	19	64,775	6
2004	ERI - Housing	4,102	4.00%	19	6,830	6
2006	ERI2003 - Town	15,910	4.00%	16	24,493	5
2017	Fresh Start	N/A	N/A	17	N/A	17

Notes on Amortization of Unfunded Liability

Year is the year the amortization base was established. **Type** is the reason for the creation of the base. **Original Amortization Amount** is the annual amortization amount when the base was established. **Percentage Increasing** is the percentage that the Original Amortization Amount increases per year. **Original # of Years** is the number of years over which the base is being amortized. **Current Amortization Amount** is the amortization payment amount for this year. **Years Remaining** is the number of years left to amortize the base.

* Includes recognition of the following asset gains/(losses) in Fiscal :

2018	$	3,229,198
2019	$	1,928,894
2020	$	(1,079)

** Contributions are set to be the amount resulting from a 5.5% increase on the prior year's contribution. The contribution in FY2033 decreases by -46.06%.

+ Change in Net 3(8)(c) amount for Fiscal Year 2018 is due to termination of payments to Minuteman Regional

Assumptions and Methodology Summary

The principal actuarial assumptions used in this valuation are the same as the assumptions used in the previous valuation, except where noted, and are summarized in the following table:

Valuation Date	January 1, 2015 Valuation
Interest Rate	7.50% (same as prior valuation).
Salary Increase	4.00% Ultimate rate, plus the following steps and longevity: • Group 1 and 2: 3.50% for the first 7 years of service • Group 4: .75% in year 5, 1.75% in year 10, 2.75% in year 15, 3.75% in year 20, and 4.75 in year 25
COLA	3% of $15,000
COLA Frequency	Granted every year
Mortality	Generational Mortality, Scale BB. For members retired under an Accidental Disability (job-related), 40% of deaths are assumed to be from the same cause as the disability. Disabled mortality Generational Mortality, Scale BB, ages set forward 2 years. (Prior valuation used Generational Mortality, Scale BB.)
Overall Disability	Groups 1 and 2 55% ordinary disability 45% accidental disability Group 4 10% ordinary disability 90% accidental disability
Retirement Rates	Groups 1 and 2 Ages 55 – 70 Group 4 Ages 50 – 65
Administrative Expense	$381,139 budget estimated for FY 2017 provided by Arlington Retirement Board.

Assets

	Cash	$	35,008.59
	Short Term Investments		5,449,298.83
	Pooled Alternative Investments		4,289,918.43
	PRIT FUND		125,058,176.78
A	Sub-Total:	$	134,832,402.63
	Interest Due and Accrued		304.12
	Accounts Receivable		485,974.12
B	Sub-Total:	$	486,278.24
	Market Value of Assets [(A) + (B)]	$	135,318,680.87

- We were furnished with the System's annual report by the Board. The market value of assets as of December 31, 2014 (adjusted for payables and receivables) is $135,318,680.87.

- The asset allocation is approximately 23% fixed income, cash, receivables and payables and 77% equities, alternative investments, hedge funds and similar types of investments. Historically, 10 to 11% has been the expected long-term rate of return for equities, and 6% to 7% has been the expected long-term rate of return for fixed income securities. Many economists and investment professionals are projecting lower returns of 6.25% to 9.00% for equities and 3.65% to 6.00% for fixed income securities. In light of these projections, as well as historical investment returns, the 7.50% interest rate assumption is within the reasonable assumption range. We have used a building block method to develop the interest rate assumption (which is the same as the assumed rate of investment return). We encourage close monitoring for changes in investment performance against expectations.

- Actuarial value of assets (AVA) of $130,161,668 is based on a four-year smoothing method. Investment gains or losses above or below the expected rate of investment return are recognized over 4 years, 25% per year. The AVA must be no more than 110% of the market value of assets and no less than 90% of the market value of assets.

Calculation of Valuation Assets as of January 1, 2015

FOUR-YEAR ASSET SMOOTHING

1. Market value of assets including receivable/payable as of 01/01/2015 — $135,318,681

2. Phase-in of asset gains and losses

	Plan Year (1)	Original Amount (2)	Percent Unrecognized (3)	Amount Unrecognized (2) x (3)
a.	2013	($4,318)	75%	($3,238)
b.	2012	$7,719,896	50%	$3,859,948
c.	2011	$5,201,214	25%	$1,300,303
d.	2010	($7,758,629)	0%	$0
e.	Total	($15,884,500)		$5,157,013

3. Valuation assets without corridor as of 01/01/2015 (1. - 2.e.) — $130,161,668

4. Corridor Check
   a. 90% of Market Value — $121,786,813
   b. 110% of Market Value — $148,850,549

5. Valuation assets with corridor as of 01/01/2015 (3. within Corridor) — $130,161,668

6. Calculation of return on valuation assets

   a. Valuation assets as of 01/01/2014 — $123,494,772

   b. ER contribs + EE contribs - Ben Pymts - Expenses — $(4,210,668)

   c. Actual return on valuation assets 5. - (6.a. + 6.b.) — $10,877,564

   d. Weighted value of valuation assets — $121,389,438

   e. Return on valuation assets (6.c. / 6.d.) — 9.0%

   f. Annualized return on assets — 9.0%

Disclosure Information Under GASB Statement 25

SCHEDULES OF FUNDING PROGRESS
(Dollars In Thousands)

Actuarial Valuation Date	Actuarial Value of Assets A	Actuarial Accrued Liability B	Unfunded AAL (UAAL) B-A	Funded Ratio A/B	Covered Payroll C	UAAL as a % of Covered Payroll (B-A)/C
1/1/2015	$130,162	$255,494	$125,332	51%	$33,534	374%
1/1/2014	$123,495	$250,412	$126,917	49%	$31,804	399%
1/1/2013	$116,431	$236,967	$120,536	49%	$30,010	402%
1/1/2012	$111,307	$229,785	$118,478	48%	$28,611	414%
1/1/2011	$121,403	$222,496	$101,093	55%	$28,637	353%

NOTES TO SCHEDULES

Additional information as of the latest actuarial valuation follows:

Valuation Date	1/1/2015
Actuarial cost method	Entry Age Normal
Amortization method	Level 5.50% increase of contribution amount
Remaining amortization period	17 years for the fresh start base
Asset valuation method	Market value adjusted by accounts payable and receivables adjusted to phase in over 4 years investment gains or losses above or below the expected rate of investment return. The actuarial value of assets must be no less than 90% of the adjusted market value nor more than 110% of the adjusted market value. Market value of assets is $135,318,681
<u>Actuarial assumptions:</u>	
Investment Rate of Return	7.50% per year
Projected Salary Increases	<u>Group 1 and 2:</u> 7.50% first 7 years of service <u>Group 4:</u> 4.75% in year 5, 5.75% in year 10, 6.75% in year 15, 7.75% in year 20 and 8.75% in year 25 <u>Ultimate Rate:</u> 4.00%

PERAC Information Disclosure

The most recent actuarial valuation of the System was prepared by Stone Consulting, Inc. as of January 1, 2015

The normal cost for employees on that date was:	$3,063,820	9.1% of payroll
The normal cost for the employer was:	$1,892,265	5.6% of payroll

The actuarial liability for active members was:	$98,619,428
The actuarial liability for retired members was (includes inactives):	$156,874,175
Total actuarial accrued liability:	$255,493,603
System assets as of that date ($135,318,681Market Value):	$130,161,668
Unfunded actuarial accrued liability:	$125,331,935

The ratio of system's assets to total actuarial liability was:	51%

As of that date the total covered employee payroll was:	$33,533,875

The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	7.50% per annum
Rate of Salary Increase:	Select and ultimate rate (4.00% ultimate rate)

SCHEDULE OF FUNDING PROGRESS (Dollars in $000's)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
1/1/2015	$130,162	$255,494	$125,332	51%	$33,534	374%
1/1/2014	$123,495	$250,412	$126,917	49%	$31,804	399%
1/1/2013	$116,431	$236,967	$120,536	49%	$30,010	402%
1/1/2012	$111,307	$229,785	$118,478	48%	$28,611	414%
1/1/2011	$121,403	$222,496	$101,093	55%	$28,637	353%

Actuarial Methods and Assumptions

ACTUARIAL METHODS

Actuarial Cost Method

The Entry Age Normal Actuarial Cost Method has been used in this valuation. Under this method, the normal cost is the amount calculated as the level percentage of compensation necessary to fully fund the prospective benefits from each member's entry age to retirement age.

The actuarial accrued liability represents the theoretical accumulation of all prior years' normal costs for the plan members as if the program had always been in effect. The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over plan assets.

Asset Valuation Method

Market value of assets (adjusted by payables and receivables) adjusted to phase in investment gains or losses above or below the expected rate of investment return over a four-year rolling period. The phase-in is 25% for year one, 50% for year two, 75% for year three and finally 100% for year four. The actuarial value of assets may be no less than 90%, or more than 110% of the market value of assets plus payables and receivables.

Fiscal Year Adjustment

The actuarial results are adjusted by the valuation interest rate and salary scale to the beginning of Fiscal Year 2017. The unfunded actuarial accrued liability is rolled forward with normal cost and further adjusted by anticipated contributions and interest.

ACTUARIAL ASSUMPTIONS

Investment Return

7.50% per year net of investment expenses.

Regular Interest Rate Credited to Annuity Savings Account

2% per year.

Salary Increases

Select and ultimate salary assumption – 3.50% steps for groups 1 and 2 during the first 7 years of service, longevity increases of .75% in year 5, 1.75% in year 10, 2.75% in year 15, 3.75% in year 20, and 4.75% in year 25 for group 4. Ultimate rate of 4.00%.

Actuarial Methods and Assumptions
(Continued)

Withdrawal Prior to Retirement

The rates shown at the following sample ages illustrate the withdrawal assumption. Withdrawal rates are set to zero if the retirement rate at that age is nonzero.

Rate of Withdrawal

Service	Group 1 and 2	Group 4
0	15%	1.5%
1	12%	1.5%
2	10%	1.5%
3	9%	1.5%
4	8%	1.5%
5	7.6%	1.5%
10	5.4%	1.5%
15	3.3%	0.0%
20	2.0%	0.0%
25	1.0%	0.0%
30+	0.0%	0.0%

Disability Prior to Retirement

The rates shown at the following sample ages illustrate the assumption regarding the incidence of disability:

Rate of Disability

Age	Group 1 and 2	Group 4
20	0.01%	0.10%
25	0.02%	0.20%
30	0.03%	0.30%
35	0.06%	0.30%
40	0.10%	0.30%
45	0.15%	1.00%
50	0.19%	1.25%
55	0.24%	1.20%
60	0.28%	0.85%

Disability is assumed to be 55% ordinary and 45% accidental for Group 1 and 2 and 10% ordinary and 90% accidental for Group 4.

Actuarial Methods and Assumptions
(Continued)

Rates of Retirement

The rates shown at the following ages illustrate the assumption regarding the incidence of retirement, once the member has achieved 10 years of service:

				Hired after 4/1/2012		
Age	Group 1& 2 Male	Group 1 & 2 Female	Group 4	Group 1& 2 Male	Group 1 & 2 Female	Group 4
50	1%	1.5%	2%	0%	0%	1.5%
51	1%	1.5%	2%	0%	0%	1.5%
52	1%	2.0%	2%	0%	0%	1.5%
53	1%	2.5%	2%	0%	0%	1.5%
54	2%	2.5%	7.5%	0%	0%	5%
55	2%	5.5%	15%	0%	0%	10%
56	2.5%	6.5%	10%	0%	0%	7%
57	2.5%	6.5%	10%	0%	0%	20%
58	5%	6.5%	10%	0%	0%	10%
59	6.5%	6.5%	15%	0%	0%	15%
60	12%	5%	20%	25%	30%	20%
61	20%	13%	20%	20%	13%	20%
62	30%	15%	25%	30%	15%	25%
63	25%	12.5%	25%	25%	12.5%	25%
64	22%	18%	30%	22%	18%	30%
65	40%	15%	100%	40%	15%	100%
66	25%	20%	N/A	25%	20%	N/A
67	25%	20%	N/A	25%	20%	N/A
68	30%	25%	N/A	30%	25%	N/A
69	30%	20%	N/A	30%	20%	N/A
70	100%	100%	N/A	100%	100%	N/A

Mortality

Generational Mortality, Scale BB (sex-distinct). (Prior valuation used Generational Mortality, Scale BB). During employment the healthy employee mortality table is used. Post-employment the healthy annuitant table is used. In-service death is assumed to be 45% accidental for group 1 and 2 and 90% accidental for group 4.

Disabled Life Mortality

Generational Mortality, Scale BB for healthy annuitants, set-forward by 2 years (sex-distinct). Death is assumed to be due to the same cause as the disability 40% of the time. (Prior valuation used Generational Mortality, Scale BB).

Actuarial Methods and Assumptions
(Continued)

Family Composition

Members assumed married with 2 dependent children – one male and one female both age 15; age difference between member and spouse assumed to be 3 years (the male being the older).

Cost-of-Living Increases

A 3% COLA on the first $15,000 of a member's retirement allowance is assumed to be granted every year.

Administrative Expenses

Estimated budgeted amount of $381,139 for the Fiscal Year 2017 excluding investment management fees and custodial fee is added to the Normal Cost.

Net 3(8)(c)

Net 3(8)(c) payments are assumed to be the same level as the past calendar year for all future years.

Step Increases

Step increases are assumed to be part of the salary increase assumption.

Credited Service

All service is assumed to be due to employment with the municipality.

Contribution Timing

Contributions are assumed to be made at the beginning of the fiscal year.

Total Payroll Increase

The total payroll is assumed to increase at 4.50% per year.

Valuation Date

January 1, 2015.

Summary of Principal Provisions

1. PARTICIPANT

Participation is mandatory for all full-time employees whose employment commences before age 65. There are three classes of members in the retirement system:

- Group 1: general employees
- Group 2: employees in specified hazardous occupations (e.g., electricians)
- Group 4: police and firefighters

2. MEMBER CONTRIBUTIONS

Member contributions vary depending upon date hired as follows:

Date of Hire	Member Contribution Rate
Prior to 1975	5% of Pay
1975 – 1983	7% of Pay
1984 – June 30, 1996	8% of Pay
After June 30, 1996	9% of Pay

Members hired after 1978 contribute an additional 2% of pay over $30,000.

3. PAY

a. Pay

Gross regular compensation excluding bonuses, overtime, severance pay, unused sick pay, and other similar compensation.

b. Average Pay

The average of pay during the three consecutive years that produce the highest average or, if greater, during the last three years (whether or not consecutive) preceding retirement. For members hired after April 1, 2012, five-year averages will be used.

4. CREDITED SERVICE

Period during which an employee contributes to the retirement system plus certain periods of military service and "purchased" service.

5. SERVICE RETIREMENT

a. Eligibility

Completion of 20 years of credited service or attainment of age 55 and completion of 10 years of credited service. If hired prior to 1978 or a member of group 4, attainment of age 55.

Summary of Principal Provisions (Continued)

b. Retirement Allowance

Determined as the product of the member's benefit percentage, average pay and credited service, where the benefit percentage is shown below (maximum allowance of 80% of average pay):

Benefit Percentage	Group 1	Group 2	Group 4
2.5%	65+	60+	55+
2.4	64	59	54
2.3	63	58	53
2.2	62	57	52
2.1	61	56	51
2.0	60	55	50
1.9	59	N/A	49
1.8	58	N/A	48
1.7	57	N/A	47
1.6	56	N/A	46
1.5	55	N/A	45
	Hired after April 1, 2012*		
2.5%	67+	62+	57+
2.35	66	61	56
2.20	65	60	55
2.05	64	59	54
1.90	63	58	53
1.75	62	57	52
1.60	61	56	51
1.45	60	55	50

*Reduction is .125% for each year early instead of .15% per year for employees with over 30 years of service.

In addition, veterans receive an additional $15 per year for each year of credited service up to 20 years

6. DEFERRED VESTED RETIREMENT

a. Eligibility

Completion of 10 years of credited service (for elected and appointed members, 6 years in the event of involuntary termination).

b. Retirement Allowance

Determined in the same manner as "Service Retirement" section above with the member eligible to start collecting a benefit at age 55, (or age 57 for post-April 1, 2012 hires) or defer until later at his or her discretion. If a member chooses, his or her contributions with interest may be withdrawn. The amount of interest he or she will receive depends on length of service and whether or not the termination of employment was voluntary.

Summary of Principal Provisions (Continued)

7. ORDINARY DISABILITY RETIREMENT

a. Eligibility

Non-job related disability after completion of 10 years of credited service.

b. Retirement Allowance

Determined in the same manner as "Service Retirement" section and calculated as if the member had attained age 55 (or age 57 for those hired after April 1, 2012), if younger. Veterans receive 50% of pay (during final year) plus an annuity based on accumulated member contributions with interest.

8. ACCIDENTAL DISABILITY RETIREMENT

a. Eligibility

Disabled as a result of an accident in the performance of duties. No age or service requirement.

b. Retirement Allowance

72% of pay plus an annuity based on accumulated member contributions with interest. Also, a dependent's allowance per year for each child. Total allowance not to exceed 100% of pay (75% for members hired after 1987).

9. NON-OCCUPATIONAL DEATH

a. Eligibility

Dies while in active service, but not due to occupational injury. 2 years of service.

b. Retirement Allowance

Benefit as if Option C had been elected (see below) and member had attained age 55 (or age 57 for those hired after April 1, 2012) if younger. Minimum monthly benefits provided as follows: spouse - $500, first child - $120, each additional child - $90

10. OCCUPATIONAL DEATH

a. Eligibility

Dies as a result of an occupational injury.

b. Benefit Amount

72% of pay plus refund of annuity savings fund balance. In the case of an accidental disability retiree who dies of the same cause, the beneficiary receives 72% of the last 12 months salary or the current pension amount, whichever is greater.

Summary of Principal Provisions
(Continued)

11. COST-OF-LIVING INCREASES

An increase of up to 3% applied to the first $15,000 of annual benefit. Funded by the Municipality from Fiscal Year 1999. Percentage increase is voted on each year by the Retirement Board. Cost-of-living increases granted during Fiscal Year 1982 through Fiscal 1998 are reimbursed by the Commonwealth.

12. OPTIONAL FORMS OF PAYMENT

- Option A

Allowance payable monthly for the life of the member.

- Option B

Allowance payable monthly for the life of the member with a guarantee of remaining member contributions with interest.

- Option C

Allowance payable monthly for the life of the member with 66-2/3% continuing to the member's beneficiary upon the member's death. If the beneficiary predeceases the member, the allowance amount "pops up" to the non-reduced amount.

Glossary of Terms

- Actuarial Accrued Liability

  The portion of the Present Value of Benefits that is attributable to past service.

- Actuarial Assets

  Market value of assets (adjusted by payables and receivables) adjusted to phase in investment gains or losses above or below the expected rate of investment return over a four-year rolling period. The phase-in is 25% for year one, 50% for year two, 75% for year three and finally 100% for year four. The actuarial value of assets may be no less than 90%, or more than 110% of the market value of assets plus payables and receivables.

- **Actuarial Assumptions**

  Estimates are made as to the occurrence of certain events that determine the level of benefits to be paid and how long they will be provided. The more important actuarial assumptions include the investment return on assets, salary increases and the rates of turnover, disability, retirement and mortality.

- **Actuarial Cost Method**

  The procedure that is used to allocate the present value of benefits between the liability that is attributable to past service (Actuarial Accrued Liability) and that attributable to future service.

- **GASB**

  Government Accounting Standards Board (issues guidance for disclosure of retirement system liabilities).

- **Normal Cost**

  The portion of the Present Value of Benefits that is attributable to benefits to be earned in the coming year.

- **PERAC**

  Public Employee Retirement Administration Commission, a division of the State government which has regulatory authority over the administration of the retirement system.

- **Present Value of Benefits**

  Represents the dollar value today of all benefits expected to be earned by current members if all actuarial assumptions are exactly realized.

- **PRIT**

  Pension Reserves Investment Trust Fund is the state controlled and administered fund for the investment of assets for members of the retirement system.

- **Unfunded Actuarial Accrued Liability**

  That portion of the Actuarial Accrued Liability not covered by System Assets.